

THE ONION PLANT BUG GENUS *LABOPIDICOLA* (HEMIPTERA:  
MIRIDAE): ECONOMIC IMPLICATIONS, TAXONOMIC  
REVIEW, AND DESCRIPTION OF A NEW SPECIES

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*Abstract.*—The onion plant bug genus *Labopidicola* Kelton is reviewed, and *L. cepula* from Texas is described as new. New distribution records and known records for all species are given, and a summary of the economic literature and speculation on pest potential are presented. Figures of male genitalia of all species and the adult male of *L. idahoensis* and a key to the species are provided to facilitate recognition.

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Until recently all species of *Labopidicola* Kelton were placed in *Labopidea* Uhler, a larger western genus. Knight (1923) described the first species, *allii*, from Missouri where it was common on wild garlic. He later recognized *ainsliei* from Iowa and *planifrons* from South Dakota (Knight, 1928) but gave no host data. Johnston (1930) described *geminatus* from a long series collected on *Allium canadense* L. in Texas, and Knight (1968) added the 5th species of this genus, *idahoensis*, again without a host association. Kelton (1979) in his revision of the genus *Labopidea* discovered that the above species were not congeneric with Uhler's type-species, *chloriza* Uhler; hence, he erected *Labopidicola* to accommodate them and made *idahoensis* the type of the genus. Tate (1940) first associated *ainsliei* with *Allium* spp., and, more recently, Kelton (1979) reported this host relationship for *idahoensis* and *planifrons*.

In this paper I summarize the economic literature, speculate on the pest potential of the species in the genus, redescribe the known taxa, describe one new species, figure the adult male of *idahoensis* and male genitalia of all species, provide new state records for three species and known distributions for all species, and give the first comprehensive key to separate species of the genus.

The following abbreviations used are for institutions cited in this paper: AMNH, American Museum of Natural History, New York; ORSU, Oregon State University, Corvallis; PDA, Pennsylvania Department of Agriculture,

Harrisburg; PSU, Pennsylvania State University, University Park; TAM, Texas A&M University, College Station; USNM, National Museum of Natural History, Washington, D.C.

#### ECONOMIC IMPLICATIONS

All species in this genus are restricted to feeding on onion and garlic, *Allium* spp. There are numerous records of at least two species damaging cultivated onions. The most frequently mentioned species, *L. allii*, has been given the common name "onion plant bug" because it often becomes a serious pest (Froeschner, 1949). Glenn (1923) provided the first life history study in his paper on "The onion capsid, *Orthotylus translucens* Tucker" (later recognized as *L. allii* by Henry and Wheeler, 1979). Glenn observed this species as early as 1915 and noted that onion tops often were killed, and that the mirids were sometimes so abundant that they covered the ground as one walked through the fields.

Stiles (1937) recorded *L. allii* as a new pest for Oklahoma, and Smith and Kelly (1937, 1938) and Bryson (1937a, 1937b, 1939) reported *allii* damaging onions throughout Kansas. From 1934 to 1936 *allii* became "exceedingly abundant" in Missouri, and many plantings of Bermuda onions were destroyed (Knight, 1941). Drake (1933, 1936, 1937a, 1937b, 1940), Haseman (1941), and Smith et al. (1946) provided numerous other records of *L. allii* causing injury. Populations as high as 15–20 bugs per plant in over 200 acres of onions have been observed in Texas (U.S. Dep. Agric., 1955). The light to medium damage reported in several Texas counties (U.S. Dep. Agric., 1957) apparently is the most recent record of onion plant bugs as pests. Damage to Moraine locust (a cultivar of honeylocust, *Gleditsia triacanthos* L.) by *L. ainsliei* in North Carolina (U.S. Dep. Agric., 1959, 1960b) should be attributed to *Diaphnocoris chlorionis* (Say), a species restricted to honeylocust (Wheeler and Henry, 1976). The reports of *Labopidea* spp. on sugar beets in Utah (Knowlton, 1933) and winter wheat in Montana (U.S. Dep. Agric., 1960a) have not been examined but probably represent misidentifications (or true *Labopidea* spp.) or accidental host records.

Other than Westcott's (1973) listing of *L. allii* as a pest on onions and my new Pennsylvania record (Henry, 1977a), I am not aware of any recent interest in these mirids as pests or of any additional reports of damage. It is not clear why onion plant bugs apparently no longer reach damaging levels. It may be that current cultivation practices and the use of more modern pesticides or, possibly, the introduction of resistant varieties have helped eliminate much of the threat to cultivated onions. Early remedies like whale oil soap mixed with water (Glenn, 1923) and 2% sulphur mixed with derris or diatomaceous earth (Drake, 1938) were said to give some control, but it may be that simple cultural methods actually have minimized the importance of onion bugs. Glenn (1923) noted that where fields were

burned over or plowed under, few mirids survived to the following year, and Knight (1941), after establishing that *L. allii* overwintered as eggs deposited in stems, suggested that eliminating old stems and destroying nearby wild *Allium* spp. would control onion plant bugs.

It is likely that these early season, univoltine species are unable to reinfest onions successfully as many populations consist of a high proportion of brachypterous females; this loss of flight would prevent easy migration of large numbers of bugs from wild *Allium* spp. back into cultivated fields.

While the onion bugs have not attracted much attention in recent years, the potential exists for members of this genus to reach damaging numbers in commercial plantings and home gardens. If large reservoir patches of wild *Allium* spp. are present and if poor sanitation practices are followed, onion plant bugs could again become a major concern in the United States.

### *Labopidicola* Kelton

*Labopidicola* Kelton, 1979: 757. Type-species: *Labopidea idahoensis* Knight.

Diagnosis.—Generally small to medium-sized mirids, length 3.30–4.70 mm in macropterous male and female, 2.75–3.20 mm in brachypterous female; body coloration yellow to bluish green, pubescence erect, suberect, and recumbent silvery and brown to fuscous setae (darker setae often becoming bristle-like), intermixed with recumbent sericeous setae, especially on head and pronotum. Head broad, distance across eyes wider than anterior margin of pronotum; vertex wide, nearly 3× the dorsal width of an eye; base with a distinct carina reaching across to posterior angles of each eye; rostrum short, stout, not reaching beyond apices of procoxae or middle of sternum; pronotum trapeziform, posterior angles strongly rounded, basal margin straight to weakly concave, middle of anterior margin often weakly sinuate, calli distinct, weakly concave, area just posterior sunken or depressed; mesoscutum broadly exposed, scutellum equilateral; hemelytra uniformly opaque green; membrane translucent to opaque, usually fumate or tinged with brown, totally brachypterous forms without hemelytral membrane common (brachyptery has not been observed in males); venter and legs uniformly greenish to testaceous. Male genitalia: Left paramere C-shaped with left side often slender and curved in toward base; right paramere generally globose with a slender spine or arm extending anteriorly when viewed *in situ*; aedeagus with 2–3 spiculi, ductus seminis thickened, tapering apically, secondary gonopore usually subapical, middle of basal margin of genital segment with a group of 2 or 3 irregularly shaped processes that are hidden when parameres are in position.

Remarks.—*Labopidicola* are recognized by the overall green color, the broad vertex with a distinct transverse basal carina, the short, thickened

rostrum (Fig. 7) that does not reach beyond the middle of the sternum, the two types of setae on the dorsum, and the male genitalia.

*Labopidicola* keys to *Labopidea* in Knight's (1941: 81; 1968: 93) general faunal studies and my (Henry, 1977b: 606) key to the green Orthotylinæ of the eastern United States, but species of *Labopidicola* can be distinguished from *Labopidea* by the more distinct basal carina on the vertex, the tylus or clypeus clearly visible from above, the shorter, stouter rostrum, and the lack of fuscous markings on the head, calli, and antennae. Kelton (1980) provided a key to separate *Labopidicola* from other genera in the Canadian Prairie Provinces.

#### KEY TO SPECIES OF *LABOPIDICOLA*<sup>1</sup>

1. Hemelytra clothed with pale and/or silvery and erect, brown to fuscous setae (setae may become bristle-like) ..... 2
  - Hemelytra clothed with only pale or silvery setae, at most, a few darker setae scattered on basal areas of coria and clavi ..... 4
2. Small species, length in macropterous male less than 3.80 mm; dorsum clothed with both long, erect, rather fine, pale and brown to fuscous setae; length of 4th antennal segment much greater than length of 1st antennal segment; male genitalia (Fig. 4); Tex. .... *geminatus* (Johnston)
  - Larger species, length in macropterous male averaging 4.00 mm or more; dorsum clothed with numerous, rather short, dark, bristle-like setae; length of 4th antennal segment subequal to length of 1st segment ..... 3
3. Length of 2nd antennal segment greater than basal width of pronotum by more than the dorsal width of 2 eyes; male genitalia (Fig. 5); Ida., Col.; B.C., Alta., Sask., Man. .... *idahoensis* (Knight)
  - Length of 2nd antennal segment greater than basal width of pronotum by less than the dorsal width of 1 eye; male genitalia (Fig. 3); Tex. .... *ceputa*, new species
4. Dorsum clothed only with short, recumbent pale setae; male genitalia (Fig. 1); Ill., Ia., Mich., Pa., Tenn. .... *ainsliei* (Knight)
  - Dorsum clothed with short, recumbent, or suberect, and long erect pubescence ..... 5
5. Length of 3rd antennal segment almost equal to basal width of pronotum in male; length of pronotum and width of vertex subequal; male genitalia (Fig. 2); Utah east to Pa. and N.C. .... *allii* (Knight)

<sup>1</sup> This key works best with well-preserved, unrubbed males. In specimens having the dorsal pubescence clearly disturbed, only male genitalia will accurately separate species; brachypterous females are best identified by their association with males.

Length of 3rd antennal segment clearly less than basal width of pronotum in male; length of pronotum less than width of vertex; male genitalia (Fig. 6); Ia., S.D.; Man., Sask. . . . *planifrons* (Knight)

***Labopidicola ainsliei* (Knight)**

Fig. 1

*Labopidea ainsliei* Knight, 1928: 235; Knight, 1941: 105; Froeschner, 1949: 171; Carvalho, 1958: 81.

*Labopidicola ainsliei*: Kelton, 1979: 757.

Diagnosis.—Male length 3.60 mm (range of 5 specimens 3.56–3.76 mm,  $\bar{x}$  = 3.63 mm), width 1.20 mm. General color yellow to yellowish green; dorsum only with short, recumbent, pale, simple setae, sparsely intermixed with silvery sericeous pubescence. *Head*: Width 0.86 mm, vertex 0.50 mm. *Rostrum*: Length 0.62 mm, reaching apices of procoxae. *Antenna*: Uniformly yellowish or testaceous, segments III and IV more brownish; I, length 0.32 mm; II, 1.12 mm; III, 0.80 mm; IV, 0.54 mm. *Pronotum*: Length 0.42 mm, basal width 0.92 mm. *Hemelytron*: Uniformly yellowish to yellowish green, with short, recumbent simple setae, intermixed with a few silvery sericeous setae; membrane translucent, shaded with brown. Venter and legs yellowish or pale yellowish green. *Male genitalia*: Fig. 1.

Macropterous female.—Length 3.32–3.52 mm ( $\bar{x}$  = 3.42 mm for 2 specimens). All specimens available are very teneral and not measurable beyond lengths. Very similar to male in color and general form.

Brachypterous female.—Length 2.76 mm, with apices of hemelytra reaching apex of abdomen, width 1.20 mm. *Head*: Width 0.86 mm, vertex 0.50 mm. *Rostrum*: Length 0.70 mm, reaching apices of procoxae. *Antenna*: I, Length 0.30 mm; II, 1.06 mm; III, 0.90 mm; IV, 0.42 mm. *Pronotum*: Length 0.40 mm, basal width 0.90 mm.

Specimens examined.—IOWA: Holotype ♂, Sioux City, June 25, 1925, C. N. Ainslie coll. (USNM); 5 ♂, 1 macropterous ♀, Ames, June 8–10, 1929, H. H. Knight and H. M. Harris colls., on onion (USNM); 3 ♂, 2 macropterous ♀, Ames, June 1, 1933–34, on wild onion (TAM). MICHIGAN: 2 ♂, 2 macropterous ♀, 2 brachypterous ♀, May 1942, E. I. McDaniel coll., on chives (USNM). PENNSYLVANIA: 1 ♂, Howard, June 18, 1978, V. Haas coll., from light trap (PSU). TENNESSEE: 2 ♂, Hamilton Co., May 10, 1942, Turner coll., in light trap at edge of peach orchard (USNM).

Remarks.—*Labopidicola ainsliei* is best recognized by the short, recumbent, pale setae on the hemelytra and by the male genitalia. The right paramere (Fig. 1d) has the apex rather broadened; the left paramere is strongly C-shaped.

This species, previously known only from Illinois and Iowa (Knight, 1941), is now recorded from Michigan, Pennsylvania, and Tennessee.

*Labopidicola allii* (Knight)

Fig. 2

*Orthotylus translucens* Glenn (*nec* Tucker), 1923: 79.*Labopidea allii* Knight, 1923: 31; Knight, 1941: 105; Froeschner, 1949: 171; Carvalho, 1958: 81; Henry, 1977a: 417.*Labopidicola allii* Kelton, 1979: 757.

Diagnosis.—Male, length 3.67 mm (range of 15 specimens 3.60–4.32 mm,  $\bar{x}$  = 3.76 mm), width 1.36 mm. General color green to bluish green, thickly clothed with erect and semierect simple setae, intermixed with silvery, sericeous pubescence, especially on head and pronotum. *Head*: Width 0.78 mm, vertex 0.48 mm, thickly clothed with silvery sericeous setae, especially along margins of eyes, median line, and on tylus. *Rostrum*: Length 0.70 mm, reaching apices of procoxae. *Antenna*: Green to testaceous, segment II testaceous, tinged with green, III and IV brownish; I, length, 0.38 mm; II, 1.16 mm; III, 1.04 mm; IV, 0.46 mm. *Pronotum*: Length 0.48 mm, basal width 1.00 mm, with scattered sericeous setae, lateral and anterior margins and median line with distinct rows of silvery sericeous setae. *Hemelytron*: Uniformly green, thickly clothed with erect and semierect pale setae, intermixed with a few scattered sericeous setae; membrane translucent brown, veins green. Venter green; legs green with apical halves of tibiae and all of metafemur becoming more testaceous. *Male genitalia*: Fig. 2.

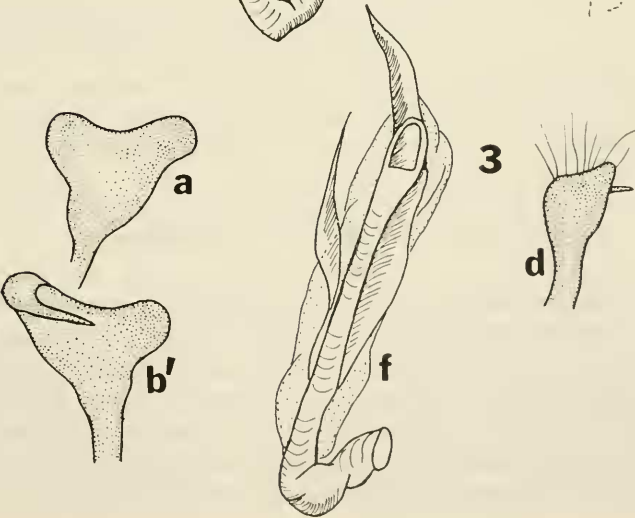
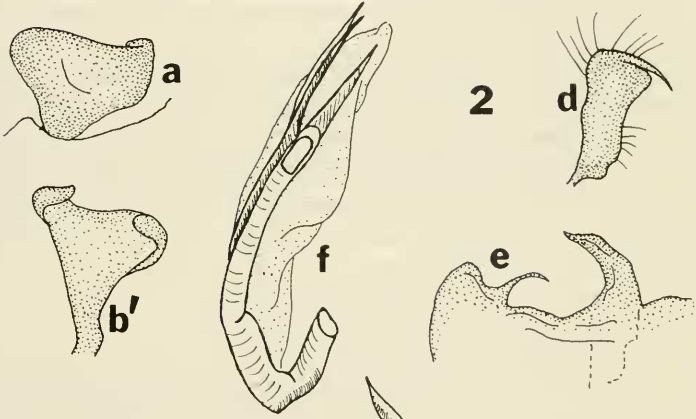
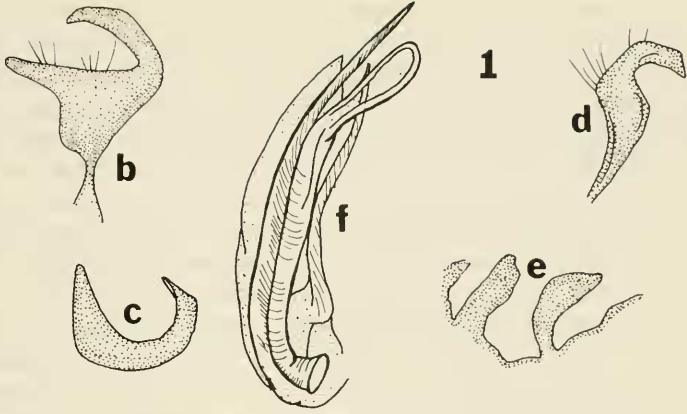
Macropterous female.—Length 4.28 mm (range of 15 specimens 4.08–4.64 mm,  $\bar{x}$  = 4.32 mm), width 1.48 mm. *Head*: Width 0.92 mm, vertex 0.56 mm. *Rostrum*: Length 0.84 mm, reaching apices of procoxae. *Antenna*: I, Length 0.38 mm; II, 1.20 mm; III, 0.94 mm; IV, 0.36 mm. *Pronotum*: Length 0.50 mm, basal width 1.18 mm.

Brachypterous female.—Length 3.25 mm (range of 5 specimens 2.84–3.40 mm,  $\bar{x}$  = 3.08 mm), length to apex of wings 2.92 mm (range of 5 specimens 2.60–3.14 mm,  $\bar{x}$  = 2.80 mm), wings reaching anterior margin of 8th abdominal tergum. *Head*: Width 0.94 mm, vertex 0.60 mm. *Rostrum*: Length 0.78 mm. *Antenna*: I, Length 0.32 mm; II, 1.02 mm; III, 0.92 mm; IV, 0.50 mm. *Pronotum*: Length 0.40 mm, basal width 0.96 mm.

Specimens examined.—ARKANSAS: 1 macropterous ♀, Washington Co., May 29, 1964, C. E. McCou coll. (USNM). ILLINOIS: 1 ♂, 1 macropterous ♀, Olney, June 1915, on onion (USNM); 1 ♂, Urbana, 1923, P. A. Glenn coll. (USNM). INDIANA: 2 macropterous ♀, 1 brachypterous

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Figs. 1–3. Male genitalia. 1, *Labopidicola ainsliei*. 2, *L. allii*. 3, *L. cepula*. a. Left paramere, lateral aspect *in situ*. b. Left paramere, lateral aspect. b', Left paramere, inside lateral aspect. c. Left paramere, dorsal aspect. d. Right paramere, lateral aspect. e. Ventral process. f. Aedeagus.



♀, Posey Co., June 6, 1931, on onions (USNM). IOWA: 2 macropterous ♀, Ames, June 8–10, 1929, H. H. Knight coll. (USNM); 1 ♂, 3 macropterous ♀, Ames, May 8, 1933–34, on onions (TAM); 1 ♂, 6 macropterous ♀, Bloomfield, May 5, 1936, F. Andre coll. (USNM); 1 ♂, 1 macropterous ♀, Bloomfield, June 15, 1937, F. Andre coll. (USNM); 2 macropterous ♀, 2 brachypterous ♀, Little Rock, July 2, 1897 (USNM); 1 ♂, Pleasant Valley, May 16, 1930, on onions (USNM); 1 brachypterous ♀, 6 mi. NW Ledyard, July 7, 1928, G. D. Hendrickson coll. (USNM). KANSAS: 1 ♂, 3 macropterous ♀, Manhattan, May 6, 1936, R. H. Painter coll. (USNM). KENTUCKY: 1 ♂, 1 macropterous ♀, Lexington, May 10, 1938, L. H. Townsend coll., on onions (TAM). MICHIGAN: 1 brachypterous ♀, Rochester, May 28, 1942 (USNM). MISSOURI: 2 macropterous ♀ (including holotype), 6 5th-instar nymphs, Jackson, Apr. 1921, A. C. Burrill coll., on wild garlic (USNM). NORTH CAROLINA: 2 brachypterous ♀, Union Co., Monroe, May 25, 1980, A. G. Wheeler, Jr. coll., on *Allium vineale* L. (PDA). OKLAHOMA: 3 ♂, 3 macropterous ♀, Chickasha, Apr. 1928, M. W. Shakleford coll. (USNM). PENNSYLVANIA: 2 ♂, 13 macropterous ♀, Dauphin Co., Clark's Valley, May 19, 1977, T. J. Henry coll., on *Allium* sp. (PDA, USNM); 1 ♂, Howard, Centre Co., June 1978, V. Haas coll., at light (PSU). UTAH: 2 ♂, Promontory, May 25, 1952, G. F. Knowlton coll. (USNM). VIRGINIA: 7 ♂, 3 ♀, King George Co., Rt. 206 just E of Stafford Co. line, May 8, 1981, A. G. Wheeler, Jr. coll., on *Allium* sp. WEST VIRGINIA: 4 ♂, 9 macropterous ♀, Grant Co., Shale Barrens, Rt. 28, 1.2 mi. W Petersburg, May 29, 1978, T. J. Henry and A. G. Wheeler, Jr. colls., on *Allium* sp. (PDA, USNM).

Remarks.—*Labopidicola allii* is best separated from other *Labopidicola* species by the thickly pubescent dorsum that lacks darker setae and by the left paramere that is broadened laterally forming a mitten-shaped pattern.

*Labopidicola allii* is the most common and widespread member of the genus. This species, previously known from Illinois, Indiana, Iowa, Kansas, Missouri, Oklahoma (Kelton, 1979), and Pennsylvania (Henry, 1977a), is now recorded from Arkansas, Kentucky, Michigan, Utah, Virginia, and West Virginia.

### *Labopidicola cepula* Henry, New Species

Fig. 3

Diagnosis.—Holotype male, length 4.36 mm (length of male paratype 4.28 mm), width ca. 1.36 mm (wings slightly spread). General color yellow green; pronotum, scutellum, and hemelytra with erect and semierect dark bristle-like setae, intermixed with recumbent, silvery sericeous setae. *Head*: Width 0.82 mm, vertex 0.50 mm. *Rostrum*: Length 0.78 mm, reaching middle of sternum. *Antenna*: Testaceous; I, length 0.42 mm; II, 1.18 mm; III, 0.98 mm; IV, 0.42 mm. *Pronotum*: Length 0.46 mm, basal width 1.12 mm. *Hem-*



*elytron*: Uniformly yellowish green; membrane translucent brown. Venter and legs yellowish to yellowish green. *Male genitalia*: Fig. 3.

Allotype.—Macropterous female: Length 4.08 mm (range of 6 specimens 3.88–4.12 mm,  $\bar{x}$  = 4.02 mm), width 1.56 mm. *Head*: Width 0.88 mm, vertex, 0.58 mm. *Rostrum*: Length 0.84 mm. *Antenna*: I, Length 0.36 mm; II, 1.20 mm; III, 0.90 mm; IV, 0.42 mm. *Pronotum*: Length 0.48 mm, basal width 1.14 mm.

Brachypterous female.—Length 3.56 mm (range of 3 specimens 3.56–3.68 mm,  $\bar{x}$  = 3.61 mm), wing tips reaching 9th abdominal tergum, width 1.48 mm. *Head*: Width 0.88 mm, vertex 0.56 mm. *Rostrum*: Length 0.82 mm. *Antenna*: I, Length 0.42 mm; II, 1.16 mm; III, 0.90 mm; IV, 0.46 mm. *Pronotum*: Length 0.46 mm, basal width 1.06 mm.

Type-material.—Holotype ♂, Bastrop Co., Texas, Bastrop State Park, May 8, 1966, J. C. Schaffner coll., taken on *Allium* sp. (USNM type no. 76881). Allotype female, same data as holotype (USNM). Paratypes: 1 ♂, 5 macropterous ♀, 4 brachypterous ♀, same data as holotype (TAM, USNM).

Remarks.—*Labopidicola cepula* resembles *allii* in male genitalia, but is most similar to *idahoensis* in dorsal pubescence. It is interesting that a male and female of *geminatus* were also collected at Bastrop Co., Texas, Bastrop State Park (May 8, 1966 and May 5, 1968 by Dr. Schaffner).

Etymology.—The specific name *cepula* is from the Latin feminine diminutive for onion.

### *Labopidicola geminatus* (Johnston)

Fig. 4

*Labopidea geminata* Johnston, 1930: 298; Carvalho, 1958: 82.

*Labopidicola geminata*: Kelton, 1979: 758.

Diagnosis.—Male, length 3.52 mm (range of 9 specimens 3.12–3.76 mm,  $\bar{x}$  = 3.52 mm), width 1.16 mm. General color yellowish to pale green; dorsum with numerous scattered silvery setae, intermixed with erect, brown to fuscous setae. *Head*: Width 0.74 mm, vertex 0.40 mm, thickly clothed with silvery sericeous setae, with distinct rows forming along inside margins of eyes and on median line, vertex scattered with a few long, erect darker setae. *Rostrum*: Length 0.60 mm, reaching apices of procoxae. *Antenna*: Segment I green, II testaceous, III and IV brown; I, length 0.28 mm; II, 1.00 mm; III, 0.78 mm; IV, 0.42 mm. *Pronotum*: Length 0.42 mm, basal width 0.94 mm, thickly clothed with silvery, sericeous setae, especially along median line and on anterior margin, intermixed with erect darker setae; scutellum and mesoscutum with scattered silvery setae and a single row of these setae along median line. *Hemelytron*: Green with erect pale and brown to fuscous setae, intermixed with recumbent silvery setae; mem-

brane fumate. Venter yellowish green; legs testaceous to yellowish green. *Male genitalia*: Fig. 4.

Macropterous female.—Length 3.76 mm (range of 6 specimens 3.44–3.84 mm,  $\bar{x}$  = 3.64 mm), width 1.36 mm. *Head*: Width 0.80 mm; vertex 0.52 mm. *Rostrum*: Length 0.70 mm, reaching just beyond apices of procoxae or to middle of mesosternum. *Antenna*: I, Length 0.32 mm; II, 0.88 mm; III, 0.72 mm; IV, 0.44 mm. *Pronotum*: Length 0.42 mm, basal width 1.02 mm.

Brachypterous female.—Length 3.08 mm (range of 5 specimens 3.04–3.28 mm,  $\bar{x}$  = 3.08 mm), length to apices of wings 2.44 mm (range 2.44–2.68 mm,  $\bar{x}$  = 2.56 mm), apices of wings reaching anterior margin of 7th abdominal tergum. *Head*: Width 0.80 mm, vertex 0.52 mm. *Rostrum*: Length 0.72 mm. *Antenna*: I, Length 0.30 mm; II, 0.94 mm; III, 0.80 mm; IV, 0.44 mm. *Pronotum*: Length 0.36 mm, basal width 0.90 mm.

Specimens examined.—TEXAS: 3 ♂, Bosque Co., 2 miles W Iredell, Apr. 24, 1970, J. C. Schaffner coll. (TAM); 1 ♂, 4 brachypterous ♀, Brazos Co., Minter Springs, Apr. 12, 1970, V. V. Board coll. (TAM); 3 ♂, Brazos Co., College Station, Apr. 6, 1964, H. R. Burke coll., at light (TAM); 2 ♂, Brazos Co., College Station, Apr. 15, 1978, T. J. Henry, J. C. Schaffner, R. T. Schuh colls., taken on *Allium* sp. (USNM); 8 ♂, Burnett Co., Inks Lake St. Park, Apr. 25–28, 1965–1968, J. C. Schaffner coll. (TAM); 7 ♂, 6 macropterous ♀, Dimmit Co., Jan. 31, 1946, H. T. Hibbs coll. (TAM, USNM); 18 ♂, 4 macropterous ♀, 8 brachypterous ♀, Gonzales Co., Palmetto State Park, Mar. 26–May 4, 1964–70, V. V. Board, H. R. Burke, J. C. Schaffner colls. (TAM, USNM); 1 ♂, 1 macropterous ♀, 3 brachypterous ♀ (paratypes), Grimes Co., Huntsville, Apr. 4, 1928, H. G. Johnston coll. (USNM); 1 ♂, Hunt Co., Apr. 23, 1954, C. F. Garner coll. (USNM).

Remarks.—*Labopidicola geminatus* was described as the "southern twin" of *planifrons*, but actually is closer to *idahoensis* based on the presence of darkened setae on the dorsum. It differs from *idahoensis* in the longer dorsal pubescence and proportionately shorter second antennal segment, and by the male genitalia.

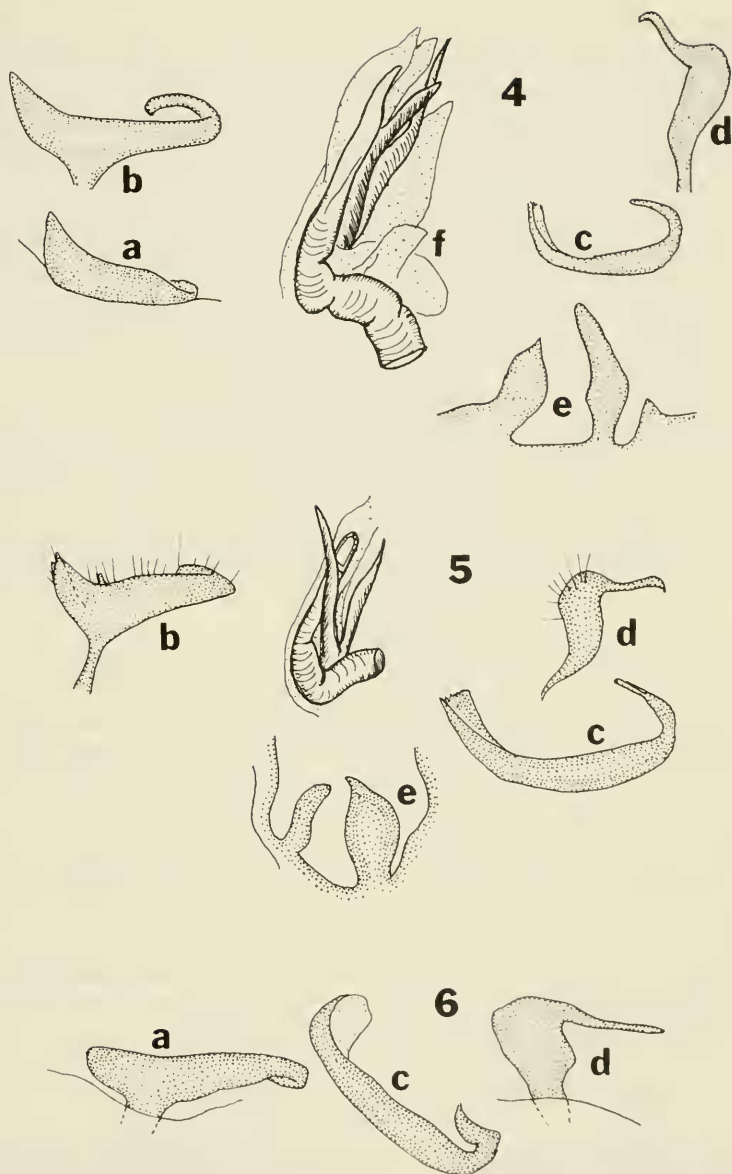
The name *geminata* is here amended to the masculine *geminatus*. According to George Steyskal, Cooperating Scientist of the Systematic Entomology Laboratory, USDA, because Kelton (1979) did not provide the meaning of *Labopidicola*, and because words ending in *-icola* form nouns of common gender, this genus must be considered masculine.

*Labopidicola idahoensis* (Knight)

Figs. 5, 7, 8

*Labopidea idahoensis* Knight, 1968: 97.

*Labopidicola idahoensis*: Kelton, 1979: 757; Kelton, 1980: 245.



Figs. 4-6. Male genitalia. 4, *Labopidicola geminatus*. 5, *L. idahoensis*. 6, *L. planifrons*. a, Left paramere, lateral aspect *in situ*. b, Left paramere, lateral aspect. c, Left paramere, dorsal aspect. d, Right paramere, lateral aspect. e, Ventral process. f, Aedeagus.

Diagnosis.—Male, length 4.02 mm (range of 15 specimens 3.80–4.28 mm,  $\bar{x}$  = 4.05 mm), width 1.28 mm. General color yellowish green; dorsum with scattered silvery, sericeous setae and rather short, bristle-like fuscous setae. *Head*: Width 0.86 mm, vertex 0.52 mm. *Rostrum*: Length 0.76 mm, reaching just past apices of procoxae to middle of mesosternum. *Antenna*: Greenish yellow, segments III and IV becoming brown; I, length 0.44 mm; II, 1.38 mm; III, 0.88 mm; IV, 0.48 mm. *Pronotum*: Length 0.46 mm, basal width 1.00 mm, with recumbent, silvery, sericeous setae, thickly intermixed with fuscous bristle-like setae. *Hemelytron*: Yellowish green with numerous, short, fuscous bristle-like setae intermixed with a few simple pale setae; membrane smoky translucent to fumate. Venter and legs yellowish green. *Male genitalia*: Fig. 5.

Macropterous female.—Not examined.

Brachypterous female.—Length 3.96 mm (range for 15 specimens 3.36–4.00 mm,  $\bar{x}$  = 3.76 mm), length to apices of wings 2.96 mm (range for 15 specimens 2.76–3.20 mm,  $\bar{x}$  = 2.98 mm), width 1.32 mm. *Head*: Width 0.94 mm, vertex 0.60 mm. *Rostrum*: Length 0.80 mm, reaching just beyond procoxae to middle of mesosternum. *Antenna*: I, Length 0.44 mm; II, 1.32 mm; III, 0.96 mm; IV, 0.46 mm. *Pronotum*: Length 0.42 mm, basal width 0.96 mm.

Specimens examined.—IDAHO: holotype ♂, 1 brachypterous ♀, Genesse, alt. 2700', May 5, 1937, V. E. Nygren coll. (USNM). OREGON: 27 ♂, 32 brachypterous ♀, Clatsop Co., Saddle Mt. State Park, June 14, 1979, R. T. Schuh coll., on *Allium* sp. (AMNH, USNM). UTAH: 2 brachypterous ♀, Cache Jct., June 11, 1903, no coll. data (USNM); 1 brachypterous ♀, Ogden, June 9, 1927, G. F. Knowlton coll. (USNM).

Remarks.—*Labopidicola idahoensis* is most similar to *geminatus* in appearance but can be separated from it by the shorter, more thickly set, dark, bristle-like setae found on the dorsum (Fig. 6) and other characters given in the key.

*Labopidicola idahoensis*, previously known from Idaho (Knight, 1968) and Colorado, British Columbia, Alberta, Saskatchewan, and Manitoba (Kelton, 1979), is now recorded from Oregon and Utah.

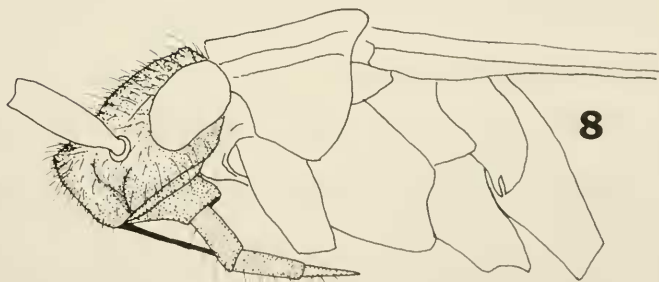
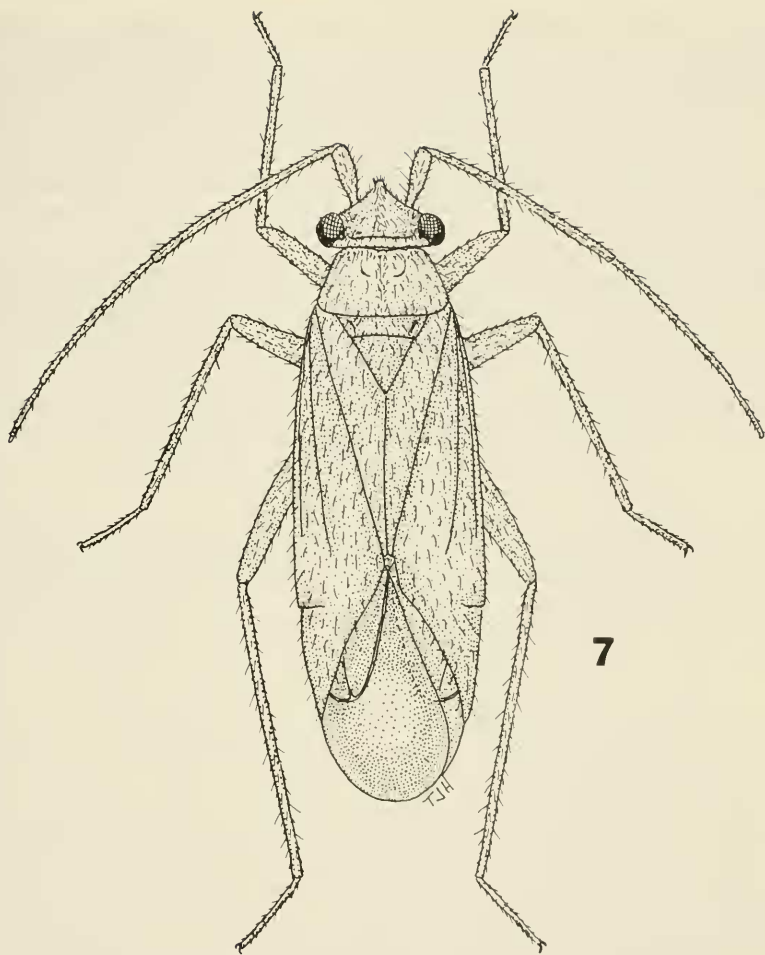
### *Labopidicola planifrons* (Knight)

Fig. 6

*Labopidea planifrons* Knight, 1928: 234; Knight, 1941: 105; Carvalho, 1958: 82.

*Labopidicola planifrons*: Kelton, 1979: 754; Kelton, 1980: 246.

Diagnosis.—Male, length 4.04 mm, width ca. 1.36 mm. General color pale greenish, posterior ½ of pronotum, hemelytral margins, setal punctures and legs tinged with blue green, dorsum clothed with erect and suberect, silvery,



Figs. 7, 8. *Labopidicola idahoensis*. 7, Dorsal habitus of adult male. 8, Lateral aspect of head and pronotum.

simple setae, sparsely intermixed with silvery sericeous pubescence. *Head*: Width 0.84 mm, vertex 0.52 mm. *Rostrum*: Length 0.70 mm, reaching just beyond procoxae to middle of sternum. *Antenna*: Segment I greenish, II and III testaceous; I, length 0.36 mm; II, 1.00 mm; III, 0.88 mm; IV, broken. *Pronotum*: Length 0.44 mm, basal width 1.02 mm. *Hemelytron*: Uniformly pale green, tinged along margins and on setal punctures with blue green; membrane translucent brownish. Venter and legs pale greenish. *Male genitalia*: Fig. 6.

Remarks.—I have examined only the holotype of *planifrons*. It is nearest to *allii* in general color and pubescence but can be separated by the characters given in the key. This is the only species with a strongly recurved hook on the right arm of the left paramere (Fig. 6c).

*Labopidicola planifrons* was described from South Dakota and later reported from Iowa, Manitoba, and Saskatchewan (Kelton, 1979).

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